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## AVIATION AND AIRCRAFT JOURNAL

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### American Aircraft Insurance

ONE of the things that a financier thinks of when contemplating an investment in an aviation enterprise, is insurance. Insurance has come to be such an important factor in modern business that few investors care to put their money in an enterprise which is not protected against substantial losses. The large insurance companies in this country have come to realize that aviation is bound to grow and hence will form a part of their field that is worthy of attention. They have not wanted for sufficient business to produce an immediate profit but have gone ahead and built up organizations to find out the character of the business in order to handle it when the volume of business is sufficient to show a profit.

An organization known as the National Aircraft Underwriters' Association has been formed for the collection and dissemination of hazard statistics. At the present time the program for a pilot depends on his past record and the association is keeping careful records of the pilots on their list. This record also goes to determine the premium of the company employing a pilot. Records are also kept of the performance and reliability of the various airplanes on the market with a view of accurately determining the risk for each of them. These records are confidential and only available to the member companies.

Another indication of interest is the recent statement of the Underwriters' Laboratories that they are planning to examine aircraft and their accessories in the same manner that they have been handling automobiles and electrical supplies. This will furnish the various insurance companies with further data and will also give the manufacturers since insurance that purchasers of their products can get insurance on them.

Other countries have made efforts in this direction but none of these have seemed to be as thorough as those in the United States. The great importance of aviation is realized all over the world and efforts everywhere will soon be on a plane with the more advanced forms already in use in this country.

### A Railway for Testing Airplanes

RESEARCH will find in this issue a brief description of a German railway installation for testing full size airplanes. The work on this installation was interrupted by the signing of the armistice and no actual aerodynamic experimentation seems to have been completed. Yet, the railway apparently has given satisfactory results from the point of view of aerodynamics and of mechanical operation.

The inclusion of a high tower for carrying the subject to be tested seems to have covered the main objection which has been raised in the use of previous installations of the kind, as at St. Cyr. The skidding arrangement of its supporting trestles allows the measurement of forces in all directions,

both as regards magnitude and position. The use of recording instruments in combination with a powerful resisting drum would seem to render experimentation a matter of reasonable difficulty. Altogether the installation appears to be one of great engineering skill and obvious utility.

It is possible in testing a full sized plane to investigate a number of points which most concern observers in the last mentioned wind-tunnel. Thus, the exact investigation of radiator effects in combination with the airplane is something which a wind-tunnel can never solve effectively. The exact location of propeller and plane is another problem on which full size work will shed considerable light. Changes in loadings resistance due to many projections are almost imperceptible in the tunnel but may well be measured on the full size machine. We can never hope to duplicate in small scale experiments the effects of fabric deformation, and elastic deformation of the structure under load.

As against these advantages, a railway installation for testing full sized airplanes offers many difficulties. These must be a great hazard expense; the cost of operation and upkeep would be relatively enormous. Owing to the simplicity of the installation, the most painstaking work would never prevent breakdowns, disappointing and vexatious delays. Weather conditions would have to be watched upon, and granted that the majority of errors in this type of work have usually been eliminated, the errors due to cross-winds, up and down currents would be a perpetual source of trouble and uncertainty.

It is by no means certain that the advantages would outweigh these deficiencies.

### American Engines

THE greatest weakness in the position of American aviation has always been the lack of variety of aviation engines. It is encouraging to learn that within a year this country will probably have adequate types of powerplants for all forms of motor and light-aircraft service. The development of the low horsepower engine has been progressing and now there is a satisfactory motor of this type. The very high powered engines, too are coming into their own. The initiative of the Engineering Section of the Air Service and the Naval Bureau to give experimental orders for the types that are lacking is commendable, for only in this way can provision be made for every future contingency.

The engines that have been produced in this country which have either been original in their conception or adaptations of foreign models have now reached a point where all their shortcomings have been mastered. It only remains for the Air Service to prepare the specifications of their requirements and give the American engine designers time to have a line of successful powerplants in this country which can equal any in the world.





The suggestion made to the manufacturer as a result of these tests and the technical data regularly furnished them in weekly, bi-weekly, and special reports regarding tests conducted by the Engineering Division have resulted in the development by aircraft manufacturers of several types of airplanes needed by the Air Service.

In addition to the types described above, which were designed by the Engineering Division, suggestions have been made for the production of 500 types of two types of combatant single-engine airplanes and for 20 short-distance night bombardment airplanes, which were brought to status of development and warranted orders for production through the cooperation of the Engineering Division with their designers.

Aircraft manufacturers are freely furnished with technical data other than that which is of a secret or confidential nature. Likewise, technical information supplied by the Engineering Division is distributed to other interested parties as well as to aircraft manufacturers, through the activities of the Information Group, which is charged with the proper dissemination of such data.

#### Forest Patrol

The Forest Patrol has had a wider field of operation and is being continually enlarged. Congress desired to grant the increased personnel sought, and at the close of that fiscal year only one squadron was engaged in patrol of the forest areas. However, plans are being drawn up to bring reserve personnel into active service and from the required organizations.

#### Retention of McCook Field

The Air Service has failed in its endeavor to secure from Congress an appropriation to provide a home for its Engineering Division. This division is now located at McCook Field, Dayton, Ohio. The results of the survey have notified the Air Service that its plans will not be extended beyond Decem-

ber, 1921. A suitable location for the home of the Engineering Division was offered the Air Service by the Dayton Wright Aeroplane Co., at a place where the Air Service representatives considered very desirable. This proposition was submitted to Congress, but provision for the maintenance of the project was refused.

The Air Service has been unable to date to find a suitable location for the Engineering Division on government-owned land. The search for a location will be continued, but it is hardly believed that the government now owns land which will be suitable for a plant of that kind. Considerable time will be required to transport the machinery and equipment from McCook Field, and at an estimated cost of one-half million dollars. At any rate, it is now clear that at its next session Congress must take the necessary legislative action for this primary and most important requirement of the Air Service.

#### Continuance of Airship Stations on the Border

During the past year a program for the erection of six border airship stations was prepared by the Air Service. Approval was secured for the erection of one station at El Paso, Tex. It was estimated that the results obtained in operations from this station would decrease the work of the project. Difficulties and delays in securing labor and materials prevented the completion of the hangar necessary for housing that airship until the close of this fiscal year.

An airship will be placed in operation from this station early in the coming fiscal year and will be used in the patrol of the border, covering a radius of approximately 200 miles in each direction. This airship will also be used for training purposes in cooperation with other units in the border districts. The Air Service believes that this patrol will prove successful and will demonstrate its claims that an airship on every patrol work of the extreme more satisfactorily than foot or mounted troops and with much less expense.



NAVY PLANE TAKING OFF FROM THE U. S. S. PENNSYLVANIA

(Photo International)

## National Advisory Committee Report for 1920

The sixth annual report of the National Advisory Committee for Aeronautics was submitted to the President by Dr. Charles D. Walcott, chairman, and transmitted to Congress by the President with the consent.

The national advisory committee, modeled by the National Advisory Committee for Aeronautics, and the constructive recommendations therein set forth for the consideration of the Congress have the hearty approval of the departments concerned as well as approval.

Parts of the report of general interest follow:

#### Organization of Government Activities in Aeronautics

During the past year the committee has on numerous occasions given consideration to the subject of organization of governmental activities in aeronautics. A number of bills have been introduced in Congress providing widely differing methods of organization, and each of these bills was discussed by the committee. After the adjournment of Congress and throughout the summer and fall of 1920 the committee endeavored to coordinate the views of the various governmental agencies interested, and to develop a tentative draft of legislation giving definite expression to the agreements reached in its consideration of such of the measures introduced the committee into general consideration. It was decided to place the question before the Congress and several new agencies, by the security of providing for, and including with, a broadly developed civil aviation, and by broad general coordination of the various agencies. The committee considered the question of organization and administration. Of all the bills introduced by the committee, two were selected for more careful consideration, and in each case this had in agreement upon which the committee was in agreement with the other members, if enacted into law, operative with a measure of freedom, efficiency, or waste, at the same time utilizing existing agencies in the best manner of good administration. An analysis of the two bills referred to, as modified by the committee, follows:

House bill 14461 was introduced into the House of Representatives by Mr. Kahn, May 31, 1920. With the modifications recommended by the National Advisory Committee for Aeronautics, it provides for the establishment of a Bureau of Aeronautics in the Department of Commerce, in charge of a Commissioner of Air Navigation, whose duties will comprise the supervision of aircraft, pilots, and airships, the designation of flying routes, cooperation with the states and municipalities in the laying out of landing fields, and, in general, the promotion of aviation looking to the achievement of its objects. The bill provides also that all rules and regulations governing air navigation, licenses, etc., shall be formulated by the Commissioner of Air Navigation, who shall submit the same to the National Advisory Committee for Aeronautics for consideration, criticism, and recommendation to the Secretary of Commerce, who, if the same meet with his approval, shall formally promulgate the same. The bill provides further that the Commissioner of Air Navigation shall be appointed a member of the National Advisory Committee for Aeronautics, and shall seek the approval of the committee in certain matters, such as the laying out of flying routes, etc., which shall be of great interest to other departments of the government. The committee believes that all such extensive plans should be carefully considered with a view to serving the national interests in far as possible, that the Commissioner of Air Navigation should have the benefit of the counsel and advice of the other governmental agencies concerned, and that the method proposed in this bill would be preferable and effective. The bill 14461 was introduced in the House of Representatives by Mr. Barker, May 10, 1920. With the modifications recommended by the National Advisory Committee for Aeronautics, it makes substantially the same provisions for the organization and development of air navigation as the modified bill H. B. 14461, described above, with several additions, viz: The various departments of the government shall prepare plans for the construction of airports, the purchase of aircraft, etc., and for the purchase or construction of aircraft, engines, accessories, and engines, and the acquisition of land

for purposes in connection with aviation, and shall submit such plans to the National Advisory Committee for Aeronautics for consideration and recommendation before contracts are made or orders are placed for same; that for the purpose of preliminary consideration of such plans, the committee shall submit their estimates for all aviation purposes to the National Advisory Committee for Aeronautics for consideration and recommendation by the committee before the estimates are submitted to Congress; the committee and recommendations of the Advisory Committee to be transmitted to Congress along with the estimates.

The committee has been anxious in its completed portions of its study by a detailed examination of suitable plans for improving the existing situation. The committee believes that the House bill as modified is responsive to that sentiment in Congress which is in favor of the most complete and efficient aviation and effort in the military and naval services. The committee is not wholly convinced that the necessity for such legislation exists at the present time, nor that the method proposed would have the desired result. On the other hand, the committee is unanimous in supporting the Kahn bill as modified. The most serious need at the time is the development of commercial aviation under Federal regulation. There has been no legislation in this field in the United States since 1910, under the Department of Commerce, but the National Advisory Committee for Aeronautics believes it unnecessary and desirous to create another independent commission to report for the exercise of its functions, and that by making the Commissioner of Air Navigation a member of the National Advisory Committee for Aeronautics, and requiring him to submit his plans to the committee, the committee will have in its actions by considerations of paramount national interests.

#### Canada's Century Regarding American Air Pilots

In June, 1920, the committee received through the State Department information to the effect that the Canadian Air Board had promulgated regulations permitting United States qualified aircraft and pilots to fly in Canada until November 1, 1920, on the basis of a permit issued by the Canadian Air Board. The committee is of the opinion that the Canadian Air Board's regulations are contemplated under the Convention for the Regulation of International Air Navigation. The committee, by resolution adopted at the July meeting, recommended that the State Department request the appointment of a Permanent Commission of the United States for the review of the Canadian Government on this matter, and in view of the fact that the Congress of the United States was not then in session, and that the next session of Congress would be December, 1920, further recommended that the State Department inquire if the Canadian Government would be willing to extend its law until November 1, 1920, the period during which United States pilots and aircraft could be permitted to fly in Canada under the existing conditions. The State Department acted upon these recommendations, and as a result the Canadian Government has extended its law until November 1, 1921. The action incident, however, serves to emphasize the need for Federal legislation for the regulation of air navigation as recommended in another part of this report.

#### A National Defense Policy

Aviation activities during the war were concentrated on the development and production of military aircraft. The activities of the military aviation were established was necessarily guided by military considerations. The close of the war found us with an enormous industry at the stage of quality production, a large number of aircraft, a large number of trained pilots, and a large number of trained fliers, and a few assigned landing fields. In brief, all this constituted the national inheritance from the resources of hundreds of millions of dollars for the development of military aviation during the war. In the two years that have elapsed since the cessation a good proportion of the aircraft material has become obsolete. A majority of the trained personnel and trained pilots have returned to civil life, and the military aviation has almost disappeared, and some of the landing fields have been surrendered. Those that have been











### Another Key West-Havana Air Line

The Transair Co., incorporated under the laws of the state of Delaware, has \$200,000, and having general offices at 522 Fifth Avenue, New York, have just launched an enterprise in commercial aviation. They will operate an aerial transportation service, carrying passengers, express and freight between Key West and Havana.

They expect their first passenger boats to be in operation by January 15. At present passengers flying between Key West and Havana, a distance of 95 miles, sit along the side of the boat to make the trip. The same journey will be performed by the large Hispania aerial yacht of the Transair Co., in one hour, with the greatest ease and comfort. A saving of five hours between the United States and Cuba with this is effected.

The officers of the company are F. E. Lowry, president; T. O. LaRocca, vice-president and secretary and A. G. Anderson, treasurer.

Three F-5-L naval flying boats, converted into magnificent passenger planes will be put into service for the Key West-Havana line. Two of these regular schedule, making two round trips per day covering all lines. These planes each have a carrying capacity of fifteen passengers, 1800 lb. of express, and fuel sufficient to make two round trips. They are fifty feet in length, are equipped with two Liberty motors of 488 hp. each and have a wing spread of 164 ft. and are capable of flying at the rate of 164 m.p.h. They are handily appointed and exquisitely furnished in every location and machinery. The planes have two cabins, one forward and one aft. A passageway connects the two. The forward cabin with its large windows affords unobstructed views and observation when the pilot wishes to land in a dark compartment suitable for playing cards, or may be used for servants or children. For the convenience of passengers, accommodations are provided for personal baggage.

The company has a new wing for its landing stage at Key West at the foot of Vernon street, near LaRocca. The landing plane in Havana will be at Corbin's Bay Vaidia which has already been secured. Arrangements will soon be completed for the service at both of these points.

The Transair Co. is the second aerial company to start an air line between Key West and Havana.

### Fly 1,564 Miles Over Sea

Two Portuguese aviation officers, Cyp. Brice Pires and Louis Sacramento Berra, have just come within 200 miles of making a record non-stop round-trip flight from Lisbon to Madeira, a distance of about 1,500 miles each way, over the sea. Their average cruising speed of the trip of approximately 1,564 miles was 115½ miles an hour.

Failure of their plane's engine compelled their descent before the voyage was completed. They descended on latitude 33 1/2 north, longitude 13 1/4 west, which is about 200 miles from Ponta Del. They were rescued by the British steamer Connaught. The surprise disappearance from view soon after the plane had disappeared is attributed to the fog.

The original intention of the aviators was to make an over-sea, non-stop flight from Lisbon to Madeira. Owing to cloudy weather and low visibility and because of the adverse conditions of the weather, they failed to find the island proper, but their chart shows that they actually reached the longitude of Madeira some miles north of the island, then headed southeast. In the fog they went south and then northeast with the result that they passed entirely around the island without realizing where they were. They landed back on the fog for the mouth of the Tagus River and would have completed a round journey had not the weather spoiled, which they had expected to reproduce at Madeira faded dawn.

### Airway from Canada to New York

The Canada Steamship Lines, Ltd., plans next summer to start an aerial passenger service between Montreal, Toronto, and New York, according to J. B. McCreary, head of the company. Water service will be followed. The planes will carry twelve passengers and two pilots.

### Permanent Commissions for N. R. F. C.

In May, 1931, commissions will be held in the Navy for the transfer to appointments in permanent ranks in the Navy of officers holding temporary commissions and members of the Naval Reserve Force. The number of officers so transferred will not exceed 1150 officers of the line of which number 500 may be appointed from Class 3, Naval Reserve Flying Corps.

Members of the Naval Reserve Force with commissioned ranks who are not more than 35 years of age, or whose age is not greater than 35 years plus their total former naval service, who qualify by the required examination are eligible for transfer to the permanent commissioned line of the Navy.

The examination will be divided into several general subjects and in the case of examination for aviation duty, questions on aviation will be substituted for one of these subjects. A knowledge of aviation will, therefore, be of considerable assistance in the competition for service status. It is interesting to note that officers' records will count 200 per cent more than any other subject.

One hundred thirty-two naval Reserve officers, Class 3 have applied to take this examination. One hundred three of this number are in active duty and thirty-two on inactive duty. The Navy Department has sent letters to all Class 3 Aviation officers who are on inactive duty requesting examination application blanks.

### Second Mail Flight

The first nonstop flight between Reno, Nev., and Salt Lake was made recently by Pilot Kenneth B. Unger, United States Air Mail Service, who brought down eleven Gamma planes while serving with the United States Flying Corps during the war. Unger made the flight of 437 miles in three hours and twenty-one minutes. The plane carried fifty pounds of mail.

Pilot Unger took off from Reno at 9:55 o'clock, Pacific time, and arrived in Salt Lake at 2:21 o'clock, mountain time. The air mail plane passed over Elko at 11:49 o'clock, Pacific time, and arrived at Salt Lake City one hour and forty-two minutes later. This equals the record time between Elko and Salt Lake made several weeks ago by Pilot John L. Eitzen. Unger undoubtedly set a record for speed flying between Reno and Elko, according to Captain Nelson manager of the Salt Lake air mail landing field.

### Quick Remodeling and Delivery

Local George W. Goddard made a fast flight from Dayton, Ohio, to Washington, D. C., recently, covering the 466 miles in three hours and twenty minutes. His first day to Dayton from Washington in a D-15-40 involving the worst of the way and taking five and a half hours to make the distance. The purpose of the trip to Dayton was to have the D-15-40 remodeled and converted into a photographic plane which will be used for mapping purposes around Washington.

Less than a week later was completed between the start from Washington, the remodeling of the plane at Dayton and the return to Washington. On the return flight back Goddard had the wind with him, and made the distance from Dayton to Washington, D. C., in one hour and twenty minutes, those to Washington in 2 hours.

### Mail Speed Record

All records for flying between Chicago and New York were broken December 2 by the air Mail Carrier 3, F. C. Goodwin, flying Chicago at 4:55 a. m., few to Cleveland, 319 miles, at the rate of 187 m.p.h., and W. L. Smith few from Cleveland to New York at the rate of 151 m.p.h., arriving there at 1:35 p. m. An average speed of 100 m.p.h. was maintained between Chicago and New York on an air line distance of 742 miles. The actual flying time between these points was 8 hrs. and 31 min. The fastest time in 30 hr. Deland's single-engine plane was used, a change of planes being made at Cleveland.



WITH the many mechanical changes and improvements in design now effective the original American-made Hispano-Suiza Engine becomes in name as well as in effect a purely American product and will henceforth be called the Wright Aeronautical Engine.

The original conception of the Hispano screw cylinder sleeve is substantially the only remaining foreign conceived part of the design

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